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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,398	04/18/2002	John Bradford Reitz	RD29180-2	7869
23413	7590	11/17/2004	EXAMINER	
CANTOR COLBURN, LLP			JOLLEY, KIRSTEN	
55 GRIFFIN ROAD SOUTH			ART UNIT	
BLOOMFIELD, CT 06002			PAPER NUMBER	
			1762	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/063,398

Applicant(s)

REITZ ET AL.

Examiner

Kirsten C Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 30-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/23/04; 7/18/02; 7/22/02; 8/17/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-29, in the reply filed on March 1, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

2. It is noted that the domestic priority date of April 19, 2001 (from the U.S. provisional applications) is not applied to the invention of claims 1-17 because the U.S. provisional applications do not disclose this claimed invention. Because U.S. provisional application 60/285,088 discloses the limitations of claims 18-29, claims 18-29 have been treated as having priority back to April 19, 2001.

Claim Objections

3. Claims 6 and 9 are objected to because of the following informalities:

In claim 6, line 3, it appears that the word --that-- should be inserted before "changes".

In claim 9, line 6, it appears that --butyrolactone-- is misspelled as "buytrolactone".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is vague and indefinite because it depends from itself, therefore it is not clear what is required by the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 18 and 21-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Eisenbraun et al. (US 5,006,370).

Eisenbraun et al. discloses a spin coating process comprising: dispensing a solution on a substrate, the solution comprising a plastic (polyamic acid polymers) and a first solvent of xylene (which has a boiling point of approximately 140 C) and a second solvent of N-methyl pyrrolidone (which has a boiling point greater than 190 C); and spinning the substrate to coat the substrate with the solution (see col. 2-3). With respect to claims 26-27, Eisenbraun et al. discloses using 25% xylene in its solvent system in Example 1. As to claims 21-24, Eisenbraun et al. lacks a teaching of the claimed roughness, asperity height, and peak to valley deviation.

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However, Eisenbraun et al. teaches using similar process steps and materials as those claimed and taught in the specification (including the use of polyimide polymer), therefore the process of Eisenbraun et al. must necessarily result in the claimed features. Any differences in properties between the claimed invention and that of Eisenbraun et al. must have been caused by process variables not claimed in the instant application.

8. Claims 1, 7-11, and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Meshina et al. (US 5,916,632).

Meshina et al. discloses a polyimide coating solution that may be applied by spin coating (col. 4, lines 45-46), whereby the solution comprises 5-50 wt% polyimide polymer resin (col. 4, lines 31-32) and two solvents in a solvent system. Meshina et al. teaches that one of the solvents may be selected from N-methylpyrrolidone, N,N-dimethylacetamide, N,N-dimethylformamide, dimethylsulfoxide, or butyrolactone (col. 4, lines 6-13) -- each of which has a boiling point in the claimed range, a polarity index of greater than or equal to about 4.0, and a pH in the range of 5.5-9, as evidenced by Applicant's own specification and dependent claim 9. While Meshina et al. is silent with regard to the number of asperities in the final coating, it is the Examiner's position that the final coating of Meshina et al.'s process would necessarily have less than or equal to 10 asperities because the process steps and materials of Meshina et al. are materially similar to the claimed process. Any differences in properties between the claimed invention and that of Meshina et al. must have been caused by process variables not claimed in the instant application.

As to claims 10, 14, and 16, it is noted that the solvents listed above do not comprise halogens, nor does the coating solution comprise the claimed particles or water. However, it is

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noted that the claims are broad enough to read on 0 wt% halogens, 0 wt% particles, and 0 wt% water.

As to claim 11, the solvents of Meshina et al. must necessarily have the claimed dielectric constant since the solvents taught by Meshina et al. are among the solvents disclosed in the specification.

As to claims 15 and 17, Meshina et al. is silent with regard to the peel strength and haze level. However, as discussed above, the process steps and materials of Meshina et al. are materially similar to the claimed process, therefore the coating of Meshina et al. must necessarily have the claimed peel strength and haze level. Any differences in properties between the claimed invention and that of Meshina et al. must have been caused by process variables not claimed in the instant application.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisenbraun et al. as applied to claim 18 above, and further in view of Hillman et al. (US 5,094,884).

Eisenbraun et al. is applied for the reasons discussed above in section 7. Eisenbraun et al. lacks a teaching of moving a dispenser over the substrate via a spiral or arc translation during spin coating. Eisenbraun et al. only generally discusses a spin coating process; one skilled in the

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art would have been motivated to look to the prior art for conventional spin coating apparatus and process for the use in the invention of Eisenbraun et al. Hillman et al. discloses a method and apparatus for spin coating whereby the dispenser moves over the substrate in an arc movement (as illustrated in Figure 3), and also results in a spiral translation over the surface since the substrate rotates while the dispenser moves over the surface (col. 5, lines 11-45). It would have been obvious for one having ordinary skill in the art to have used the spin coating method and apparatus of Hillman et al. to perform the spin coating step in the process of Eisenbraun et al. with the expectation of successful results since Eisenbraun et al. lacks details of a specific spin coating procedure or apparatus.

11. Claims 2-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meshina et al.

Meshina et al. is applied for the reasons set forth above in section 8.

As to claims 2-6, Meshina et al. is silent with regard to the weight average molecular weight and Tg of the polyimide resin. It would have been obvious to one skilled in the art to have selected an optimal polyimide material depending upon the end use and desired qualities of the resulting coating in the absence of a showing of criticality. It is also noted, with regard to claims 4-5, that Meshina et al. does not teach the use of a polyimide having carboxylic acid functional groups, and the claims are broad enough to read on a polymer having no carboxylic acid functional groups.

As to claims 12-13, Meshina et al. is silent with respect to its coating solution's viscosity. Coating viscosity is a known cause-effective variable. It would have been obvious for one

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skilled in the art to have optimized the viscosity through routine experimentation depending upon the desired coating thickness, the spin speeds and times used, etc. in the absence of a showing of criticality.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Feist et al. (US 6,715,200) is cited for its teaching of a spin coating solution comprising polyetherimide resin in an anisole/butyrolactone solvent system (col. 12-13).


Yamada et al. (US 6,645,881) is cited for its teaching of a combination of the claimed solvents, however Yamada et al. disclose use with scan coating instead of spin coating.

Davlin et al. (US 6,461,983) is cited for its teaching of spin coating a solution comprising the claimed solvents in combination with polyimide polymer.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kirsten C Jolley
Primary Examiner
Art Unit 1762

kcj